Abstract
Controversy and uncertainty concerning dyslexia is mirrored in EFL teachers’ hesitation and doubtfulness as to how they can most successfully deal with individuals with dyslexia. Several prevailing misconceptions about the mechanisms, symptoms and teaching approaches are at large, which, most probably, can be attributed to the gap, the mismatch between the contemporary sophisticated scientific knowledge and practice and to the fact that pre- and in-service EFL teachers are not offered satisfactory training on dyslexia. This paper shortly discusses some background theoretical considerations on dyslexia, identifies the principles of effective teaching and refers to EFL teachers’ professional development needs on dyslexia.

Keywords: dyslexia, EFL teacher training, phonological awareness, multisensory approach, orthographic depth

1. Introduction
The study of dyslexia is very much interdisciplinary in nature; it invites expertise and appreciates knowledge in such scientific disciplines as neurobiology, genetics, cognitive psychology, linguistics and pedagogy. Searching these fields for converging pathways, hopefully allowing the creation of a more complete picture of the phenomenon in question, is constantly in the course of action, with new bits and pieces added regularly. Nevertheless, such an interdisciplinary and intensive research approach also generates numerous questions and controversies. Indeed, this seems the case with dyslexia. Clashing research findings are piling up, particularly with reference to the underlying causes of this learning difference, the interpretation of which poses considerable problems – some see the evidence as complementary, some as rather contradicting perspectives.

The abovementioned controversy and uncertainty is also mirrored in teachers’ hesitation and doubtfulness as to how they can most successfully deal with individuals with dyslexia. Several prevailing misconceptions about the mechanisms, symptoms
and teaching approaches are at large, which, most probably, can be attributed to the gap, the mismatch between the contemporary sophisticated scientific knowledge and practice.

Dyslexia is a specific learning difference that has an effect not only on literacy skills in students’ first language, but also manifests itself in foreign language learning attempts (Kormos & Smith 2012; Nijakowska 2008, 2010; Peer & Reid 2000; Sparks, Ganschow & Pohlman 1989, Sparks et al. 2006; Schneider & Crombie 2003). Dyslexic foreign language learners can achieve average and above average foreign language competence provided they can count on adequate instruction and teachers’ support. Unfortunately, EFL (English as a foreign language) teachers report the lack of sufficient understanding of the nature of dyslexia and the difficulties it causes in foreign language learning. They admit that they are hesitant about which teaching techniques are appropriate and can enhance the language learning processes of students with dyslexia. EFL teachers stress that they receive no or very little training on dyslexia during their studies and as a part of in-service training (professional development courses).

This paper stresses the need for closing the apparent dyslexia research-practice gap. It shortly reviews some background theoretical considerations concerning dyslexia, identifies the principles of effective teaching and EFL teachers’ professional development needs on dyslexia. The paper’s aim parallels the practitioner’s standpoint in that it proposes that the outcome of the prolific multidirectional research on dyslexia needs translating into practical applications in the school setting. However, changes in the classroom practices concerning dyslexic foreign language learners may only be expected when teachers are adequately trained and understand the nature of this learning difference.

2. Grasping dyslexia: theoretical considerations
2.1 Defining dyslexia
Defining dyslexia is a complex task and, in fact, definitions of dyslexia depend on the purpose for which they are used. Dyslexia is differently conceptualized and different terminology is used to describe the condition in definitions offered by specialists in different fields, for example educational and medical contexts (learning difference vs disorder). A shift in views on dyslexia from a disorder, medical condition to a learning difference seems to have become a dominant trend. A chronological change
in dyslexia-related discourses involves moving from locating the problem in an individual (medical discourse – dyslexia as a syndrome; legal discourse – dyslexia as a disability), through perceiving the condition as a societal problem (social discourse – dyslexia as a specific learning difficulty; educational discourse – dyslexia as a special educational need), to accepting the position that there is no problem but only diversity (inclusive discourse – dyslexia as a specific learning difference) (Kormos & Smith 2012). The way we use language to label various concepts, the type of discourse – medical, social, inclusive – can shape the way we think about different constructs and express our attitudes about them. To a considerable extent discourse practices can determine what schools should do for learners with dyslexia, how they can include such learners into the mainstream education and how flexible educational systems should be to successfully cater for the needs and provide equal treatment for all students.

Most definitions of dyslexia refer to one or more levels of description: biological (concerning the brain, neurological functioning and genetic contributions), cognitive (connected with information processing and learning mechanisms), behavioural (relating to reading and spelling problems) and environmental (involving socio-economic and instructional factors). A causal modelling framework, proposed by Frith (1999), involving all the above-mentioned layers – biological, cognitive and behavioural and recognizing the environmental, cultural influences operating at all three levels – proved extremely useful in clarifying some confusions regarding the nature of dyslexia. Dyslexia entails the existence of a complex causal chain from biology, through cognition to behaviour. Consequently, three levels of explanation should be combined to get the complete picture. This means that if there is a brain abnormality – distal cause of dyslexia – in a specific brain system at the biological level (e.g. magnocellular pathways or cerebellum), then a deficit in the mental processes (cognitive level – e.g. reduced working memory, poor phonological processing, incomplete automatization, slow information processing) sub-served by this system would be expected. The cognitive level processing deficit, in turn, serves as a more proximal cause of reading difficulty (Frith 1999). Environmental/cultural influences and individual differences (e.g. age, sex, ability, motivation, personality, social support, provision of teaching, cultural attitudes, socio-economic factors, instructional methods, the nature of the language, orthographic depth) do not constitute the causes of dyslexia but can considerably aggravate or ameliorate its
behavioural signs. Proximal cognitive cause of dyslexia, common to most accounts, is a phonological processing deficit (attributable to brain abnormalities in language areas), resulting in difficulties in single word decoding.

Dyslexia refers to the neuro-developmental condition with a biological origin (genetic origin, basis in the brain) and behavioural signs, not to any reading problems. Dyslexia is as a type of specific learning difference, which primarily manifests itself in difficulties with reading and spelling but behavioral signs cannot nonetheless be limited to problems with written language. The difficulties experienced by learners with dyslexia are frequently unexpected and surprising because the students, regardless of their reading and spelling difficulties, might do well in other subjects and they might have received effective classroom instruction on literacy skills.

Several causal theories of dyslexia have been proposed but most researchers claim that the main reason for dyslexic difficulties is reduced phonological awareness, that is, poorer ability to identify, differentiate and manipulate sounds and to learn how sounds correspond to letters. However, as already mentioned, problems caused by dyslexia are not limited to reading and spelling. Dyslexic individuals often find it difficult to sustain their attention for a long time, to automatize new knowledge and can have problems with gross and fine motor skills. They might, however, be exceptionally talented and creative in solving different kinds of problems, they also often possess good visual skills.

Dyslexic difficulties might be of different degrees of severity and dyslexia might be associated with a variety of other learning differences. Dyslexic individuals might display very different constellations of strengths and weaknesses (Kormos & Smith 2012). Importantly enough, even if dyslexic students have managed to overcome their literacy problems (behavioral signs of dyslexia), their overall learning difference is not likely to disappear and is going to affect them all through their lives. Dyslexia is a dimensional phenomenon and not an all or nothing state, its signs can undergo dynamic changes. Dyslexia exists from birth and can manifest itself differently over the lifetime of an individual, so the signs of dyslexia can alter with time. Some of them are dominant at the onset of formal schooling and reading instruction and, later become less pronounced or completely disappear, while other, like spelling difficulty, seem more persistent and usually prevail into adulthood. Diminishing prevalence and intensity of reading difficulties by no means implies that the underlying impairment of phonological processing vanishes or that one can grow out of dyslexia (Frith 2008).
Once identified, people remain dyslexic, however, with time, adequate instruction and due to their hard work they become able to move up along the continuum of the reading ability and to successfully handle tasks which used to pose great problems in the past. Summing up:

(...) dyslexia is not a disease which comes with school and goes away with adulthood. It is not a temporary childhood affliction; it is a lifelong burden. Nor can it be cured simply by improving reading and writing skills. Of course, such improvement is highly desirable, but it needs to be recognized as a symptomatic treatment rather than a cure (Frith 1999: 209).

2.2 Dyslexia across languages

The knowledge that spoken words are composed of smaller phonological units such as syllables, onsets, rimes and phonemes is essential for adequate phonological processing which involves identifying, differentiating and manipulating those phonological chunks to form words in a conscious and intentional way (Krasowicz-Kupis 2004, 2010; Maurer 2003; Sochacka 2004; Sparks 1995). When learning to read in an alphabetic system a child needs good phonological processing skills and has to understand the alphabetic principle that is the idea that written words symbolize spoken words in the following way: single sounds are represented by single letters or letter clusters. Learners need to grasp the rules of representing speech with letters (phoneme-grapheme conversion rules) and become skilful in converting spoken to written language and written to spoken language. Both completing phonological processing tasks and applying grapheme-phoneme conversion rules prove problematic for dyslexic language learners. Poor word decoding (reading) and encoding (spelling) skills – generally referred to as print processing – constitutes the most characteristic sign of dyslexia (Szczerbiński 2007).

The language processing system tends to be selectively impaired in individuals with dyslexia, mainly concerning phonological processing, while other aspects of language remain rather normal. Dyslexic phonological processing difficulties, well documented with regard to dyslexic children and adults alike, vary in range and severity (Høien & Lundberg 2000; Hulme et al. 2005; Lundberg 2002; Ramus et al. 2003; Snowling 2001a, 2001b; Szenkovits & Ramus 2005; Vellutino et al. 2004). The
ubiquitous phonological processing problems in dyslexia seem to stem from poor quality of phonological representations of speech sounds, which are responsible for efficient – fast and correct – spoken word recognition and production. Dyslexic phonological representations tend to be deprived of distinctness and/or segmental specificity (Goswami 2000; Snowling 2001a). Poorly specified phonological representations have a detrimental effect on precise learning of phoneme-to-grapheme mapping.

Impaired phonological processing seems to be transferred from native to second/foreign language. Phonological processing has been proved to be linguistically (L1-L2) interdependent, which means that “phonological processing skills in one language are predictive of word recognition skills within and cross-linguistically” (Geva 2000: 20). This also means that difficulty with phonological processing is usually evident in all languages studied by a dyslexic individual, however the intensity and range of these difficulties may vary depending on the language. The way literacy is acquired depends very much on the orthographic system of a given language. Qualitative differences in literacy acquisition and, consequently, the way reading problems manifest themselves across languages depend on the degree of consistency in mapping graphemes onto phonemes (Davies, Cuetos & Glez-Seijas 2007; Seymour, Aro & Erskine 2003). Languages with consistent (shallow) orthographies tend to be more learner-friendly, while languages with deep orthographic systems pose considerably greater demands on individuals with dyslexia learning to read and spell in these languages – irrespective of the fact whether they are native, second or foreign languages for them (Goswami 2000; Hanley et al. 2004; Lundberg 2002; Reid & Fawcett 2004; Snowling & Caravolas 2007; Wimmer 1993; Ziegler et al. 2003). So the signs of dyslexia and intensity of reading and spelling problems in a given individual may differ across the languages he/she is studying, which would depend on the sound-symbol conversion rules operating in these languages.

Alphabetic orthographic systems can be classified into shallow (transparent) and deep (opaque) depending on the degree of consistency of the letter-to-sound relations – defined as orthographic depth. Shallow orthographies (e.g. Spanish, Finnish or Turkish) represent simple letter-sound relations, while deep orthographies (e.g. English, French, Danish or Portuguese) may demonstrate unpredictable and unequivocal grapheme-phoneme relations and complexities such as, for instance,
multi-letter graphemes, multiple spelling choices and irregularities. A given letter or a letter cluster may always be pronounced the same way in some languages (e.g. Greek, Italian, Spanish), whereas in other languages it can have several distinct pronunciations (e.g. English, Danish). Similarly, a phoneme can be noted down with multiple spelling choices (e.g. English, French, Hebrew) or is virtually always spelled the same way (e.g. Italian) (Awramiuk 2006; Ziegler & Goswami 2005, 2006; Frost & Ziegler 2007). Highly transparent orthographies tend to show one-to-one correspondence in both phonology-orthography (spelling) and orthography-phonology (reading). Conversely, English (deep orthography) lacks consistency in either direction. German or Greek show highly regular relations in reading but they are rather complex with regard to spelling (Spencer 2007).

2.3 Research-validated teaching approaches
Research-validated teaching methods recommended for dyslexic students involve direct, explicit and multi-sensory instruction in phonological awareness and letter-sound correspondences, supported with frequent repetition, ample practice, drills and learning strategy training. This usually brings highly positive effects in terms of enhanced spelling and reading ability in the native and foreign language (Crombie & McColl 2000; Gustafson, Ferreira & Rönnberg 2007; Nijakowska 2008, 2010; Schneider 1999; Schneider & Crombie 2003; Vellutino et al. 2004; Wise et al. 2007). The most frequently recommended approach is the multi-sensory structured learning (MSL) approach that involves teaching the elements of language, not only the sound and spelling system but also vocabulary and grammatical structures as well as the four skills (listening, reading, speaking, writing) through the parallel activation of several sensory pathways – auditory, visual, tactile and kinaesthetic. Another key component of the MSL involves progressing in small, cumulative steps and overlearning until the practiced aspects of language become automatic. Such approach facilitates successful anchoring of the information in memory (Kormos & Smith 2012; Nijakowska 2013).

Different types/sizes of phonological chunks (e.g. onset, rime, phoneme) seem crucial for accuracy and speed of reading in different languages (psycholinguistic grain size theory) (Ziegler & Goswami 2005, 2006). While teaching reading and spelling in consistent orthographies, small grain size units should be given special attention. On the other hand, children learning to read in deeper orthographies could most probably benefit more from a combination of teaching of the small and large
grain size units and whole-word approach (‘look and say’). In more shallow (transparent) orthographies, children form orthographic representations of phoneme-level information with ease, thus the awareness of individual phonemes is crucial in developing the reading skill. In contrast, the awareness of onsets and rimes has greater importance in languages with deep (inconsistent) orthographies (e.g. English), because grouping words according to the sounds they begin with or common endings makes it possible to decode new words by analogy. Children learning to read in deep orthographies like English need to master mapping strategies at more than one grain size to become skilful readers (Awramiuk 2006; Davies et al. 2007; Goswami 2000; Krasowicz-Kupis & Bryant 2004; Sochacka 2004).

Combining phonological awareness training with sound-symbol relations training seems to boost reading and spelling skill development most considerably. The sequence of activities in such a training is extremely important, we start with bigger and more salient phonological chunks and move towards individual sounds. Children first learn to perceive words within sentences, then intra-syllabic elements (syllables, onsets, rimes) within words, and, finally, individual sounds. In English an ability to recognize onsets and rimes helps to group words into categories. Children aware of these intra-syllabic elements learn to decode new words by analogy and form word families such as the following one: *cat* – *hat* – *rat* – *bat* where all the words share the rime ‘at’. Phonemic awareness can be developed through identifying individual sounds in different positions in words (initial, final, medial), recognizing, differentiating, counting and manipulating (adding, deleting, substituting) sounds.

Auditory (clapping) and visual (boxes, blocks, tokens, cards) cues can be used to help children count, segment, blend and manipulate phonological units. Since children are expected to eventually grasp the letter-to-sound relations, the letter(s) corresponding to a given sound can be placed on the tokens, which allows children to move cards with letters while forming words, to change the position of the cards easily, try out various options and correct mistakes. Next, special attention is given to different spelling choices of particular sounds (e.g. English long vowels) and orthographic rules which determine the choice of a way of spelling a particular sound in a given word. Again students learn to group words into families according to the spelling pattern they share (e.g. right – might – fight – flight – bright – night – light – tight; time – ride – mine – fine – side – mile – kite – like). The aim of the training is to gradually reduce the time and effort invested in decoding and encoding language until
reading and spelling become skilful and automatic, then a shift from the mechanical aspect of reading to comprehension and critical assessment and of the content of the text can take place.

Apart from providing dyslexic learners with more specialised training described above, especially with regard to sound and spelling system, teachers should take care of creating a suitable, supportive learning environment. This can be achieved by introducing a set of enabling solutions, adjustments and accommodations to help dyslexic foreign language learners access the curriculum and secure equal educational opportunities for all learners. Dyslexic learning differences can be accommodated in many different ways, it is important to adopt an individualised approach so that various learning needs, strengths and weaknesses of dyslexic students are taken into consideration. Adjustments may involve simple alterations in classroom environment (light, temperature, volume, equipment, materials) and management (grouping, routine, pace) but also changes in curriculum (tasks, assessments), communication modes (instructions, feedback) as well as testing and assessment procedures (Kormos & Smith 2012; Nijakowska 2010).

3. Grasping dyslexia: EFL teachers’ professional training needs

Across European countries foreign language teachers, along with teachers of other subjects, are obliged by the formal ministerial regulations both to recognise the needs of dyslexic foreign language learners and to cater for them (Bogdanowicz & Sayles 2004), however, this obligation seems to be rarely translated into appropriate classroom practices.

One could expect that the available knowledge and current research findings on dyslexia and effective instructional techniques provide relevant and sufficient data for EFL teachers so that they can make informed choices with regard to teaching methods. However, teachers seem to demonstrate an apparent lack of enthusiasm and relative reluctance when it comes to implementing the research-validated teaching methods (Philips, Clancy-Menchetti & Lonigan 2008; Ritchey & Goeke 2006). This may be the result of teachers’ lack of awareness and specialized thorough knowledge and understanding of the concepts that are to be converted from research and applied in practice (Binks-Cantrell, Malatesha Joshi & Washburn 2012; Philips et al. 2008; Spear-Swerling & Cheesman 2012). This content knowledge conditions successful teaching of struggling readers (Bos et al. 2001; Moats 1994, 2009; Moats & Foorman
2003; Washburn, Joshi & Binks-Cantrell 2011a, 2011b), also in the EFL context (Goldfus 2012). Teacher knowledge studies (e.g. Joshi et al. 2009a, 2009b; Goldfus 2012) revealed that a likely cause of limited knowledge of basic language concepts such as phonological awareness, phonemic awareness, alphabetic principle, phonics and morphology can be assigned to insufficient and/or inadequate initial teacher training. Washburn et al. (2011a, 2011b) claim that teacher knowledge of dyslexia (on which pre- and in-service teachers receive very little training) cannot be separated from the knowledge of these basic language concepts.

EFL teachers themselves repeatedly report the need for training and guidance on how to work with dyslexic learners. They more often than not perceive their level of confidence, knowledge and experience with regard to identifying, teaching and assessing dyslexic individuals as rather low. In addition, there exists great social demand that teachers are able to understand the foreign language learning needs of dyslexic students and provide them with equal educational opportunities in the mainstream inclusive classrooms. The availability of appropriate training with regard to dyslexia offered to student teachers and practicing foreign language teachers across European countries seems to be rather limited. At the same time both EFL experienced and student teachers voice a clear need and interest in undertaking professional training on teaching English as a foreign language to dyslexic students. This has been confirmed by the study conducted among approximately 300 pre- and in-service teachers from several European countries whose aim was to investigate how the EFL pre- and in-service teachers perceive and evaluate their knowledge of dyslexia, their experience with dyslexic foreign language learners as well as their overall confidence in teaching and assessing such individuals (Nijakowska 2014). In addition, the study aimed at identifying the EFL pre-service and in-service teachers’ needs and preferences with regard to training, including its format and content, which would equip them with the necessary knowledge about dyslexia and skills to work with dyslexic learners.

The findings of studies where teachers report their perceptions should be interpreted with caution as such self-reported perceptions may not very accurately reflect the actual level of teacher knowledge and skills (Cunningham et al. 2009). Teachers may find it troublesome to precisely assess their knowledge and skills. Also, their perception may not parallel their gains on tests verifying such knowledge and skills (Cunningham et al. 2004). In addition, self-report measures may trigger
respondents to provide answers that are more socially acceptable, which is referred to as social desirability bias (Washburn et al. 2011a). That is why teachers’ self-reports on their knowledge and training needs on dyslexia in the foreign language teaching context (Nijakowska 2014) were supplemented by the findings of the detailed desk research conducted by the DysTEFL project \(^1\) (www.dystefl.eu) partners in six European countries. The aim of the desk research was to collect data on: required formal qualifications of teachers of English for different levels of education; dyslexia as a part of the pre-service teacher training (PRESETT) offered by institutions providing initial EFL teacher training; dyslexia as a part of the in-service teacher training (INSETT) offered by institutions responsible for continuous EFL teacher training and professional development. Finally, legal documents and ministerial regulations on dyslexia were analysed. The desk research findings turned out to be consistent with the EFL teachers’ opinions and confirmed their professional training needs. The outcomes of both the self-report measure and the desk research work as a point of reference and bear implications for educational policy makers, higher education authorities and EFL teacher training institutions responsible for designing professional training schemes and for preparing future and practicing EFL teachers for working with dyslexic students.

Several (e.g. Brady et al. 2009; Podhajski et al. 2009) teacher knowledge studies highlight the potential of professional development schemes and training in enhancing teacher knowledge. Research findings (McCutchen & Berninger 1999; McCutchen et al. 2002a, 2002b, 2009) clearly show that collaborative on-going professional development that focuses on improving the areas of weakness, delineates research-based instructional techniques and offers opportunities for practice and feedback promises changes in teachers’ instructional practices and, in turn, in the level of students’ achievement. Based on the outcome of the abovementioned needs analysis (Nijakowska 2014), the structure and content of the professional development scheme – the DysTEFL – Dyslexia for teachers of English as a foreign language course (http://www.dystefl.eu/index.php?id=20) – was designed. The DysTEFL course has been enthusiastically welcomed by EFL teachers and teacher trainers. The course has

\(^1\) Note also (a) Koyre’s influence on his students Kuhn, Lakatos and Feyerabend (see Koyre 1957), and (b) Psychologist Lewin’s (1935) (Cassirer 1923 inspired) contrast between Galileo’s ‘hidden’ laws/universals and Aristotelian ‘observables’. 
also received recognition from EFL experts who perceived it as a much needed, tailor-made course for teachers and one that addresses the apparent gap in their training.

The DysTEFL course is an innovative professional development programme that aims to raise pre- and in-service EFL teachers’ awareness of the foreign language learning needs of dyslexic students. It provides both a solid theoretical foundation about the nature of dyslexia and practical suggestions for classroom teaching, task and curriculum design, and assessment. The course acquaints language teachers with a wide repertoire of useful teaching methods, techniques and tools so that the quality and effectiveness of foreign language teaching to students with dyslexia can be enhanced. An important feature of the course is that it takes a task-based approach to teacher training and combines it with the reflective model of teacher development. The course participants can develop as reflective practitioners who experiment with the learner-centered teaching methodologies, creatively adapt teaching methods, tasks and techniques to their context and then reflect on the outcomes of the learning and teaching processes.

4. Conclusions

Well-designed EFL teacher training programmes on dyslexia in the foreign language context can considerably add to closing the gap in EFL teacher training schemes. This in turn helps to promote equity, social cohesion and social inclusion by addressing educational disadvantage through high quality education, more targeted support and inclusive education. Specialized training on EFL and dyslexia should be offered to EFL teachers in response to the professional training needs voiced by EFL teachers themselves but also by teacher trainers, teacher training authorities and institutions.

The fundamental issue remains to raise awareness of dyslexia among all parties involved in the initial EFL teacher training and continuing development. Enhanced level of awareness, knowledge and skills of EFL teachers translates into maximised quality of teaching and greater dyslexic foreign language learners’ achievement. Dyslexic students can benefit from the type of schooling available to the majority of

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2 The DysTEFL follow up project, entitled *DysTEFL2 – Dyslexia for Teachers of English as a Foreign Language 2* ([http://dystefl2.uni.lodz.pl/](http://dystefl2.uni.lodz.pl/)) was launched at and is coordinated by the University of Łódź, Poland with the aim of organizing teacher training events on EFL and dyslexia across European countries. The project was launched under the Erasmus+ Programme, Key action 2: *Strategic partnership. Cooperation for innovation and the exchange of good practices.* Grant agreement number: 2014-1-PL01-KA200-003578; realisation time: 2014-2016.
children, provided a set of special adjustments and enabling solutions, which adapt the educational system towards their needs and abilities, can be offered to them by the well-trained teachers.

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